REMARKS

Claims 1-17 remain pending in this application. Claims 1-17 are rejected. Claim 5 is objected to. Claims 1-17 are amended herein to clarify the invention, express the invention in alternative wording, to broaden language as deemed appropriate and to address matters of form unrelated to substantive patentability issues.

Applicant herein traverses and respectfully requests reconsideration of the rejection of the claims and objection cited in the above-referenced Office Action.

Claim 5 is objected to based upon a noted informality. The claim is amended to address the objection. Accordingly withdrawal of the objection is respectfully requested.

Claims 6 and 8 are rejected as indefinite under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of the invention as a result of informalities stated in the Office Action. Claim 6 is cancelled herein, rendering its rejection moot. Claim 8 is amended to remove or correct the informalities noted in the Office Action. Therefore, reconsideration of the rejection of claim 8 and its allowance are earnestly requested.

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, as obvious over Simmons (US 5,720,827) under 35 U.S.C. §103(a). The applicant herein respectfully traverses these rejections.

Claim 1 is amended to add a recitation of "a serial connection circuit which electrically connects said solar cell modules, said solar cell modules being configured such that an output current of each of said solar modules is approximately equal to one another." Applicant respectfully submits that the Simmons reference fails to teach or suggest this feature. Therefore, the reference fails to anticipate the claim as amended. Furthermore, as failing to contain the above noted disclosure, a *prima facie* case of obviousness cannot be properly established. Reconsideration of the rejection of the claim 1 and its allowance are respectfully requested.

Furthermore, because of the nature of the added subject matter, applicant now argues presents arguments against a hypothetical rejection as obvious, based upon a combination of Simmons in view of Freundlich (US 6,150,604), and further in view of Nakada (WO 2004/001858, US 2006/00086384) under 35 U.S.C. §103(a).

Regarding the primary reference, applicant respectfully submits that Simmons is not reasonably related to the claimed subject matter of claim 1 of the present invention for the following reasons.

The solar battery according to Simmons (see Fig.2 and Fig.3) is provided with a photo active region 20. This photo active region 20 comprises plural conductive layers made on the conductive substrate 21. Each of the conductive layers has conducting transparent matrix 24 and minute semiconductor clusters (22, 26,28,30,32) embedded in the matrix 24. The size of semiconductor cluster is 0.4 to

16nm, and the thickness of the matrix 24 is 10 to 20nm. Moving upwards (to the incident side), the size of clusters becomes smaller.

Because of the structural characteristics according to the above disclosure, it is not possible to provide positive and negative electrodes and pn junction on each semiconductor particle (cluster). Each particle, therefore, does not function as a solar cell. That is, each particle cannot generate a photo-voltaic current. As such, it is impossible to align the particles (clusters) in plural columns and plural rows and connect these particles electrically in series and in parallel, so that the output current of each of conductive layers can be adjusted, as suggested by the Examiner, in view of Nakada.

Furthermore, the apparatus disclosed in Simmons does not include plural modules. For example, the apparatus shown in Fig.3 is only one module for generating photo-voltaic current. In the apparatus according to Simmons, in order to adjust band-gap of each of the conductive layers, the size of the clusters has to be made even. But, this is quite impossible technically.

In contrast, sensitivity wavelength bands of plural types of solar cell modules according to the present invention are adjusted by using various semiconductor material having different band-gaps.

In connection with the apparatus of Freundlich, very thin planar semiconductor layers having different band-gaps are stacked. And, by providing pair of electrodes on both ends of the stacked layers, the solar battery is constituted.

Each of semiconductor layers has the same shape and the same pn junction of the same size. Moving upwards (to the incident side), the sensitivity wavelength become short. Plural pn junctions are stacked and connected in series via tunnel direct-connecting diodes. Therefore, the output electric current flowing between the electrodes become the minimum current generated by any of plural pn junctions. So, it is impossible to output effectively all of the photo-voltaic current generated by plural pn junctions.

According to the present invention of claim 1, and as illustrated, for example, in Fig.16, the number of spherical solar cells connected in series and the number of spherical solar cells for cell group modules, connected in parallel, are determined so as to generate equal photo voltaic current. In other words, plural types of solar cell modules are constructed so that an output current of each of different types of solar cell modules is nearly equal to one another.

The operation of the laminated solar cell battery according to the present invention is described in paragraph [0073] to [0081], [0103] and [0104] of the published specification.

Thus, it is respectfully submitted that the rejected claim is not made obvious in view of the Simmons, Freundlich and Nakada references for the reasons stated above.

Claims 2 and 3 are rejected as obvious over Simmons in view of Freundlich (US 6,150,604) under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection. For a rejection under 35 U.S.C. §103(a) to be sustained, the differences between the features of the combined references and the present invention must be obvious to one skilled in the art.

Applicant respectfully submits that the arguments in favor of patent claim 1 above, similarly apply to the rejections of claims 2 and 3, particularly since these are based upon only the Simmons and Freundlich references, and the patentability of claim 1 has been argued in view of yet another cited reference, i.e., the additional Nakada reference.

Thus, it is respectfully submitted that the rejected claims are not obvious in view of the cited references for the reasons stated above. Reconsideration of the rejections of claims 2 and 3 and their allowance are respectfully requested.

Claims 4-8, 10, 11, 16 and 17 are rejected as obvious over Simmons in view of Freundlich (US 6,150,604), and further in view of Nakada (WO 2004/001858, US 2006/00086384) under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection.

Applicant respectfully submits that the arguments in favor of patent claim 1 above, similarly apply to the rejections of claims 4-8, 10, 11, 16 and 17, since these are based upon the same combination of reference already discussed above.

Thus, it is respectfully submitted that the rejected claims are not obvious in view of the cited references for the reasons stated above. Reconsideration of the rejections of claims 4-8, 10, 11, 16 and 17 and their allowance are respectfully requested.

Claim 9 is rejected as obvious over Simmons in view of Freundlich and Nakada, and further in view of Alvi et al. (The Potential for Increasing the Efficiency of Photovoltaic Systems by Using Multiple Cell Concepts) under 35 U.S.C. §103(a). Claims 12 and 13 are rejected as obvious over Simmons in view of Freundlich, and further in view of Alvi et al. and Alivisatos et al. (US 20030226498) under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection. Claims 14 and 15 are rejected as obvious over Simmons in view of Freundlich, and further in view of Alvi et al., Alivisatos et al. and Wegleiter et al. (US 6,531,405) under 35 U.S.C. §103(a). The applicant herein respectfully traverses these rejections.

It is respectfully submitted that none of the disclosures of Alvi et al., Alivisatos et al. and Wegleiter et al. supplements what is lacking in Simmons, Freundlich and Nakada, as discussed above. Therefore, a *prima facie* case of obviousness cannot be established, as the proffered combination of references fails to teach or suggest all claimed features. Thus, reconsideration of the rejections of claims 9 and 12-15 and their allowance are respectfully requested.

No fee is believed due. If there is any fee due the USPTO is hereby authorized to charge such fee to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited.

Respectfully submitted,

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